

*E1 Sub F2*  
*cont.*  
combinations thereof.

*E2*  
*Sub F3*  
10. (Four times Amended) The anti-wear compound of claim 1 wherein the anti-wear compound is made from the first moiety, second moiety and third moiety compounds selected from the group consisting of respectively in order for each anti-wear compound trimethylol propane trioleate-sorbic acid-sorbitol, trimethylol propane trioleate-sorbate-sorbitol, and trimethylol propane trioleate-sorbic acid-hydroquinone.

*E3*  
*Sub F5*  
14. (Amended) The process for synthesizing an anti-wear compound of claim 13 wherein the second moiety is selected from the group consisting of sorbic acid, sorbic anhydride, tetrahydrophthalic anhydride, tetrahydrophthalic acid, salicylic acid, salicylic anhydride, acrylic acid, acrylic anhydride, C<sub>1-10</sub> alkyl, C<sub>2-10</sub> alkenyl, or C<sub>1-10</sub> alkoxy derivatives of the foregoing acids and anhydrides, and combinations thereof.

*E4*  
*Sub F7*  
23. (Amended) The anti-wear supplement composition for addition to lubricant formulas of claim 22, wherein the second moiety is selected from the group consisting of sorbic acid, sorbic anhydride, tetrahydrophthalic anhydride, tetrahydrophthalic acid, salicylic acid, salicylic anhydride, acrylic acid, acrylic anhydride, C<sub>1-10</sub> alkyl, C<sub>2-10</sub> alkenyl, or C<sub>1-10</sub> alkoxy derivatives of the foregoing acids and anhydrides, and combinations thereof.

*E5*  
26. (Amended) The anti-wear supplement composition for addition to lubricant formulas of claim 25 wherein the esterification catalyst is an acid catalyst.

*E6*  
*Sub F9*  
31. (Amended) The crankcase oil formulation of claim 28 wherein the second moiety is selected from the group consisting of sorbic acid, sorbic anhydride, tetrahydrophthalic anhydride, tetrahydrophthalic acid, salicylic acid, salicylic anhydride, acrylic acid, acrylic anhydride, C<sub>1-10</sub> alkyl, C<sub>2-10</sub> alkenyl, or C<sub>1-10</sub> alkoxy derivatives of the foregoing acids and anhydrides, and combinations thereof.

## RESPONSE

This Supplemental Preliminary Amendment is responsive to the Office Action dated

March 5, 2001 and the Interview of December 11, 2001. Claims 1-35 are pending in the present application. Claim 36 was presented in the Preliminary Amendment filed November 13, 2001. Claims 4, 10, 14, 23, 26, and 31 have been amended by this Supplemental Preliminary Amendment.

Applicants respectfully disagree with the Examiner's rejection of the claims under 35 U.S.C. §§ 102 and 103. Nonetheless, Applicants have elected to amend claims 4, 10, 14, 23, 26, and 31 solely for the purpose of expediting the patent application process in a manner consistent with the Patent and Trademark Office's Patent Business Goals (PBG), 65 Fed. Reg. 54603 (September 8, 2000). Claims 4, 10, 14, 23, 26, and 31 as now presented contain only those limitations of originally filed claims. Therefore, this Amendment does not narrow the scope of the claims within the meaning of *Festo*.

**1. AMENDMENT TO CLAIMS UNDER 35 U.S.C. § 112**

The Examiner objected to claim 10 as being indefinite for allegedly not clearly pointing out the members of the Markush grouping. For reasons of clarity unrelated to patentability, the Applicants have amended claim 10 to overcome this objection. Further, for reasons of consistency, the Applicants have amended claims 4, 14, 23, and 31. In order to correct the dependency, the Applicants have amended claim 26 to depend from claim 25.

**2. REJECTIONS UNDER 35 U.S.C. § 103**

The Examiner rejected claims 1-9 and 11-19 under 35 U.S.C. Section 103(a) as being unpatentable over Urushibata et al (5,304,316) in view of Funahashi et al (4,696,869) and Lindemann (3,322,703). The Applicants reassert and incorporate herein the remarks made in view of this rejection in the Preliminary Amendment of November 13, 2001.

The Applicants respectfully request the Examiner to reconsider the assertion of this rejection in view the inappropriateness of applying non-analogous art in a rejection under 35 U.S.C. Section 103. The combination of references is improper if one of the references is non-analogous art. *In re Clay* (CAFC 1992) 966 F.2d 656, 23 USPQ 2d 1058 (emphasis added). The Applicants respectfully direct the Examiner's attention to MPEP Section 2141(a) wherein the inapplicability of non-analogous art when making a rejection to the claims under 35 U.S.C. 103 is discussed. In view of the remarks of November 13, 2001 in the Preliminary Amendment, the Applicants respectfully assert that the Urushibata, Funahashi, and Lindemann cited against claim 1-9 and 11-19 are non-analogous art and therefore do not render obvious any of the claims.

The Examiner rejected claims 20-35 under 35 U.S.C. Section 103(a) as being unpatentable over Urushibata et al (5,304,316) in view of Funahashi et al (4,696,869) and Lindemann (3,322,703) as applied to claims 1-9 and 11-19 above and further in view of Zehler (4,601,840). The Applicants respectfully traverse this rejection and request that the Examiner reconsider her rejection in view of the remarks addressed thereto in the Preliminary Amendment of November 13, 2001.

First, the addition of Zehler to the references which the Applicants argue are non-analogous does not eliminate the inappropriateness of a 35 U.S.C. 103 rejection based on non-analogous art. Also, with regards to claims 20-35, the reaction between compounds disclosed in the reactions described in the formation of the synthetic ester from the polyol at Column 5, line 39 through Column 6, lines 1-52 of Zehler fail to teach or disclose at least the claimed second moiety of "a compound having a diene conjugated carbon-carbon double bond and a carboxylic acid moiety or anhydride group" as claimed in claims 20 and 28. Since none of the references teach the anti-wear compound claimed, the disclosure of certain "additives" in Zehler (apparently cited by Examiner at Columns 8, lines 61 to Column 9 line 64) cannot render the claim obvious.

The Examiner rejected claims 1-8 and 11-35 under 35 U.S.C. §103 as unpatentable over three Hayashi patents ('194, '955 and '573). The Applicants respectfully traverse this rejection and request that the Examiner reconsider her rejection in view of the remarks addressed thereto in the Preliminary Amendment of November 13, 2001 (incorporated herein) with regards to the Hayashi patents.

Applicants submit that the subject matter of these claims is not obvious over this combination of references because the Examiner has not provided the proper motivation for making this combination, as required by MPEP 2142-2144. These sections of the MPEP specifically establish the requirement that there must be a suggestion or motivation in the references themselves to modify the cited references to support a rejection for obviousness. As stated in the MPEP:

"[o]bviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art." (MPEP 2143.01, quoting from *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q. 2d 1596 (Fed. Cir. 1988).

Further, MPEP 2143.01 citing *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990):

"[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." (emphasis in original).

These MPEP sections are in accord with numerous well-established precedents. *In re Geiger*, 815 F. 2d 686, 2 U.S. P. Q. 2d 1271 (Fed. Cir. 1987); *N.V. Akzo v. E.I. du Pont de Nemours*, 810 F.2d 1148, 1 U.S. P.Q. 2d 1704 (Fed. Cir 1987); *In re Farrell*, 853 F.2d 894, 7 U.S.P.Q. 2d 1673 (Fed. Cir. 1988).

With regards to claims 1-8 and 11-35 and the 35 U.S.C. 103 rejection in view of the Hayashi patents ("Hayashi"), Hayashi merely suggests an esterification reaction using a carboxylic acid and a polyhydric alcohol. Col. 3, lines 67-68 and col. 4, lines 1-2. Hayashi does not teach or suggest a cycloaddition reaction between a diene and a dienophile, commonly known as the Diers-Alder reaction as claimed in (a) claim 11 (process claim claiming the "Diels-Alders reaction"), (b) claim 20 (directed to an anti-wear supplement claiming a "first moiety reacted in a first reaction with a second moiety" [this reaction is commonly known as the Diels-Alders reaction]), and (c) claim 28 (directed to a crankcase oil formulation claiming a "first moiety reacted in a first reaction with a second moiety" [i.e, the Diels-Alders reaction]). Further, Hayashi does not teach the reaction conditions and the cycloaddition reaction as claimed in claim 1. Therefore, Hayashi's reaction products do not teach the product of claim 1. The Applicants respectfully assert that the rejection under 35 U.S.C. 103 in view of Hayashi to claims 1, 11, 20 and 28, and any claims dependant therefrom, has been successfully overcome. Withdrawal of this rejection is respectfully requested.

The Examiner rejected claims 1-6, 11-16 and 20-24 as unpatentable under 35 U.S.C. §103 over LeSuer. The Applicants respectfully traverse this rejection and request that the Examiner reconsider her rejection in view of the remarks addressed thereto in the Preliminary Amendment of November 13, 2001 (incorporated herein) with regards to LeSeur.

Further to the remarks in the Preliminary Amendment of November 13, 2001, LeSeur cannot render claims 1-6, 11-16 and 20-24 unpatentable under 35 U.S.C. Section 103 because it does not teach or suggest that which is claimed in claims 1-6, 11-16, and 20-24. LeSeur teaches

an *alkylation* reaction to form an ester. Column 3, line 27. It does not teach or suggest: (a) "reacting a first moiety with a second moiety in a molar ration of from about 1:2 to about 2:1 at a temperature of from about 22°C to about 320°C under an inert atmosphere to form an intermediate adduct" as claimed in claim 1, (b) the "Diels-Alders reaction" as claimed in claim 11, and (c) the "first moiety reacted in a first reaction with a second moeity" (this reaction is commonly known as the Diels-Alders reaction) as claimed in claim 20. LeSeur does not teach or suggested the claimed cycloaddition reaction. Therefore, applicants respectfully assert that the rejection under 35 U.S.C. Section 103 in view of LeSeur to claims 1, 11, and 20, and any claims dependant therefrom, has been successfully overcome. Applicants respectfully request withdrawal of this rejection.

### 3. REJECTIONS UNDER 35 U.S.C. § 102

The Examiner rejected claims 1-9 and 11-27 under 35 U.S.C. §102 as anticipated by or under 35 U.S.C. §103 as obvious over Baillargeon. Further to the remarks in the Preliminary Amendment of November 13, 2001, the Applicants also state as follows.

Baillargeon cannot render obvious nor anticipate the product by process claims because the end product is not the claimed product of our product by process claim 1. Baillargeon discloses and the Applicants claim processes that are *distinguishable*, thereby the products of these processes are also inherently *distinguishable*. In re Myers, 159 USPQ 339 (1968). The end product in Baillargeon is a polymer made up of a plurality of monomers that include anhydrides and polyols. Baillargeon may incorporate in its product monomers that are similar to our second and third moiety, but Baillargeon's disclosure and our claimed processes do not result in the same product being formed. Withdrawal of this rejection is respectfully requested. Their esters are polyester promoted or hydroxyl promoted as discussed on col.1, lines 58 through column 2, line 7 and column 2, lines 25-33.

With regards to claims 11-27, Baillargeon does not disclose nor suggest : (a) the "Diels-Alders reaction" as claimed in claim 11, (b) the "first moiety reacted in a first reaction with a second moiety" (this reaction is commonly known as the Diels-Alders reaction) as claimed in claim 20, and (c) the "first moiety reacted in a first reaction with a second moiety" (i.e. the Diels-Alders reaction) as claimed in claim 28. The Diels-Alder reaction is a cycloaddition reaction that produces a cyclic product. Baillargeon discloses monomers made up of anhydrides and polyols. But Baillargeon's product is a *polymer chain* which grows through "an ester

additive product" (col. 8, line 57) of "hydroxyl promoted ester compositions" (col. 3, lines 43-44) or "ester promoted polyester compositions" (col. 4, lines 10-11) with the anhydrides or polyols just forming part of the repeating monomer groups making up the polymer chain. Therefore, since Baillargeon does not disclose nor suggest a cycloaddition reaction as claimed in claims 11-27, it cannot render the claims anticipated or obvious. Applicant asserts that any rejection to claims 1-9 and 11-27 under 35 U.S.C. §102 as anticipated by or under 35 U.S.C. §103 as obvious over Baillargeon has been successfully overcome. Applicant respectfully requests withdrawal of this rejection.

The Examiner rejected claims 1-9 and 11-27 under 35 U.S.C. Section 102(b) as anticipated by LeSuer. Applicants respectfully traverse this rejection for the reasons stated in the Preliminary Amendment of November 13, 2001 and for the following reasons.

LeSuer discloses and the Applicants' claim processes that are *distinguishable*, thereby the products of these processes are also inherently *distinguishable*. In re Myers, 159 USPQ 339 (1968). Generally, the presence of process limitations in product claims, which product does not otherwise patentably distinguish over prior art, cannot impart patentability to that product. In re Stephens, 145 USPQ 656 (1965). But here the starting compounds in LeSuer are so different that undergoing the alkylation process disclosed in LeSuer would result in a different product than that claimed in claim 1. LeSuer fails to disclose the claimed second moiety of "a structure having a diene conjugated carbon-carbon double bond and a carboxylic acid or anhydride moiety." LeSuer's process uses a compound having a "conjugated carbon-carbon double bond" (col. 4, lines 5, i.e. conjugated dienes) in an *alkylation* reaction with maleic acid or maleic anhydride or the like (col. 3, lines 20-32, i.e. the dienophiles). But, that is as far as LeSuer goes. LeSuer does not add the additional moiety required by the claim 1 of an *anhydride or carboxylic acid moiety* onto the conjugated diene. Therefore, it does not use the same claimed second moiety in its alkylation process. The free anhydride or carboxylic ends are necessary in the esterification process with the third moiety as claimed. Absence of the carboxylic acid or anhydride moiety would result in a different product than that claimed in claim 1.

Further, LeSuer's *alkylation* reaction does not anticipate the claims by not disclosing the same compounds undergoing the Diels-Alder *cycloaddition* process as claimed in claim 1 thereby inherently yielding the production of distinguishable intermediary adduct products as claimed. Rather than disclosing the cycloaddition reaction, LeSuer specifically discloses an